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SPECIAL REPORT

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Corporate and Consumption Tax Incidence In An Open Economy

by Arnold C. Harberger

The ACCF Center for Policy Research is pleased to announce that UCLA Professor Arnold C. Harberger has been named the John J. Byrne Fellow of the ACCF Center for Policy Research. Mr. Byrne, a member of the board of the American Council for Capital Formation, is a prominent business leader and philanthropist. Professor Harberger, the widely recognized "dean" of public finance economists, is a member of the board of the ACCF Center for Policy Research.

As the John J. Byrne Fellow at the ACCF Center for Policy Research, Professor Harberger has undertaken significant new research on the incidence of the corporate income tax (CIT) and value-added tax (VAT) in an open economy where capital can flow freely across international borders. This work extends Professor Harberger's seminal analysis of the corporate tax incidence which has served as the foundation for much of the modern research on the incidence of the corporate tax burden. These new findings will be invaluable as the policy debate about the incidence of consumption taxes versus income taxes accelerates in Congress, the press, and the private sector.

Corporate Tax Incidence

The best way to visualize the incidence of a tax is to think of it as a "wedge," Professor Harberger observes. For example, taxes on cigarettes, liquor, and telephone calls introduce a wedge between the price paid by the buyer and the price that is received by the seller. In the simplest textbook example involving supply and demand for just one commodity, adding a tax causes the price to go up for the buyer and down for the seller. That is, the burden of the tax is divided between the buyer and the seller. In more complicated situations, the concept of the wedge remains equally valuable, but the ramifications of inserting that wedge extend beyond the simple case just described.

For example, when a 50 percent corporate income tax is inserted into a previously tax-free country with no such tax on the non-corporate sector, the rate of return in the two sectors will eventually be equalized because suppliers of corporate capital will not be content to earn a return less than that received by suppliers of noncorporate capital. Capital moves out of the taxed sector and into the untaxed sector, leading to a situation in which the gross rate of return goes up in the taxed sector (because the corporate capital stock is smaller) and the general rate of return in the untaxed sector goes down (because its capital stock is now larger). After-tax returns are equalized again and the government now receives tax revenues. Thus, whatever burden is being borne by corporate capital will be borne by all capital, not just the capital that is in the corporate sector.

Prior to the development of general equilibrium analysis, in which Professor Harberger was a pioneer in the 1960s, economists maintained that part of the corporation income tax was borne by labor, part by consumers, and part by shareholders (or by capital). That led to the thinking that the worst that could happen is that capital would bear the entire tax, Professor Harberger observes. In contrast, general equilibrium analysis leads to the conclusion that capital can bear less, an equal amount, or more than the full burden of the corporate income tax.

Tax Incidence in a Small Developing Country

Setting the stage for his analysis of a large country such as the United States, Professor Harberger begins with a simple example of the incidence of a corporate income tax in a small, developing country. He notes that when we speak of corporation tax incidence in an open economy, we are considering two major links between this economy (the one where the tax change is taking place) and the rest of the world. The first is the capital market, linking the rates of return to capital here and in the rest of the world. The second is the market for tradable goods, linking their prices in this market with those that prevail abroad for the same goods. The example also assumes that the rates of return to capital are governed by a worldwide market wherein the after-tax rates of return to capital in the principal world centers tend to be brought to equality.

Professor Harberger sets up four sectors—corporate tradable (manufacturing), corporate nontradable

(transport and public utilities), noncorporate tradable (agriculture) and noncorporate nontradable (services and housing). A small developing country is one in which the return on capital lies beyond its influence. Thus, putting a tax on the income from corporate capital would simply lead to adjustments whereby less capital would be at work in that country.

Once we realize that the presence of the tax implies that significantly less capital will be combining with the same amount of total labor (in the small developing country), we should not be surprised that the equilibrium real wage has to be lower. But there is an additional and more critical reason (above and beyond simple capital-labor substitution) why labor's wage must fall. This is because of the need to compete with the rest of the world in the production of manufactures (corporate tradables). The tax is a wedge that has been inserted into the preexisting cost structure. The prices of corporate tradable products cannot go up because they are set in the world marketplace; the after-tax return to capital cannot go down (except transitorily), because capital will not be content to earn less in the small developing country than abroad. Some element of cost has to be squeezed in order to fit the new tax wedge into a cost structure with a rigid product price at one end and a rigid net-of-tax rate of return to capital on the other. The only soft point in this cost structure is wages. If they do not yield, the country will simply stop producing corporate tradables. If the country indeed continues to produce such goods, then wages must have yielded—by just enough to absorb the extra taxes that have to be paid (see Table 1, panel A).

If the after-tax rate of return to capital does not change and the price of the product does not change, and wage costs, per unit of product, are reduced by exactly enough to pay the newly inserted tax, then the activity will be able to survive, even in the presence of the tax. But it is not consistent with market processes for wages (of any given kind of labor) to go down drastically in one sector and to just stay the same in the rest of the economy, Professor Harberger states. The post-tax equilibrium will not come about instantaneously, but when it does finally emerge it should be characterized by equal pay for equal work, for each type of labor, no matter in what industry that work is performed.

Table 1 Small Developing Country

Price Formation Before and After Corporation Tax is Imposed

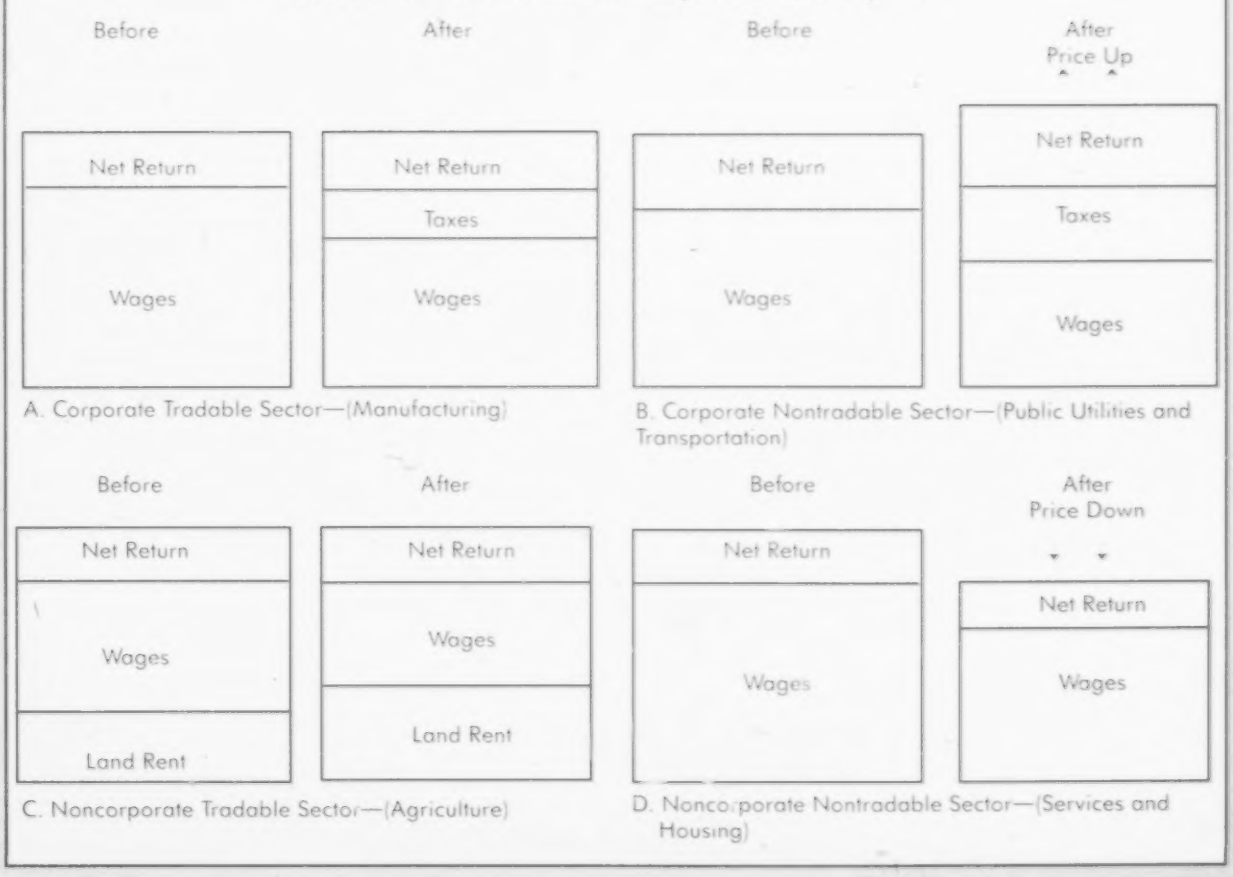


Table 1 presents a visual picture of price formation in the four sectors, before and after the tax is imposed. The significant story here is that labor in manufacturing bears exactly the full burden of the tax in manufacturing. If this means a fall of 10 percent in real wages, so be it. That fall, however, extends to the entire labor force. In public utilities and transportation, this fall in wages is matched (or more than matched if Sector B is more capital-intensive than Sector A) by tax payments to the government. (The more-than-matching part is passed on to consumers of the sector's product.) Put another way—labor's loss in manufacturing is exactly equal to corporation income tax collections from manufacturing. All other labor bears losses that match those of labor occupied in manu-facturing. The manufacturing sector is invariably much larger, relative to the total corporate sector than is the manufacturing labor force relative to the total labor force. Plausible orders of magnitude are one-half for the former fraction and one-fifth to one-fourth for the latter one. Using these numbers we would have labor bearing 2 to 2 1/2 times the burden of the corporation income tax in a typical developing country.

An Exploration of the United States' Case

The most significant feature that distinguishes the case of the United States from that of a small developing country is the relative importance of the United States in the world capital market. There was a time, during the years following World War II, when the United States may have accounted for more than half of the total capital stock in the non-Communist world. Today, the fraction is considerably less, probably more like 30 to 40 percent. But this is still a large fraction, and it signifies that disturbances originating in the United States will almost automatically affect the equilibrium of the world capital market.

To address the case of the United States, Professor Harberger presents an exercise in which, owing to the capital market consequences of a U.S. CIT, world rates of return to capital fall, leading to a loss by owners of capital worldwide that is equal to what the U.S. government collects from the tax. Thus it is fair, in a sense, to say that owners of capital worldwide bear the full burden of the tax. But this inference is misleading because the mechanisms described in the preceding paragraphs are also at work. In particular, Professor Harberger concludes that labor's wage in the United States must fall very sharply in order to absorb the tax wedge being inserted into the price structure of that part of the corporate tradables sector where final products are substantially homogenous (e.g., steel, electrical wiring, powdered milk) and whose prices are basically set in the world market (see Table 2). This wage fall is likely to mean that labor will bear 2 to 2 1/2 times the full burden of the U.S. corporation income tax. Who benefits as a consequence of this huge burden on labor plus the additional amount borne by capital located in the United States? Mainly, it is consumers of the products of the noncorporate, nontradable sector (whose prices unequivocally fall as both wages and net returns decline), and the owners of agricultural land whose economic rents rise to reflect both the fall in wages and that in the net rate of return.

Professor Harberger's analysis of the United States' case is framed as if there were no existing CIT anywhere, and then a 50 percent CIT were inserted into the United States. This brings out the essence of the equilibrating process very sharply but it is not an experiment likely to be conducted in the real world. In the real world what we see is changes in tax rates in one or several countries. This analysis applies intact, he concludes, when corporation income taxes are changed in any one country.

Table 2 The United States Case (Tax Imposed Only in U.S.)

Price Formation Before and After Tax is Imposed

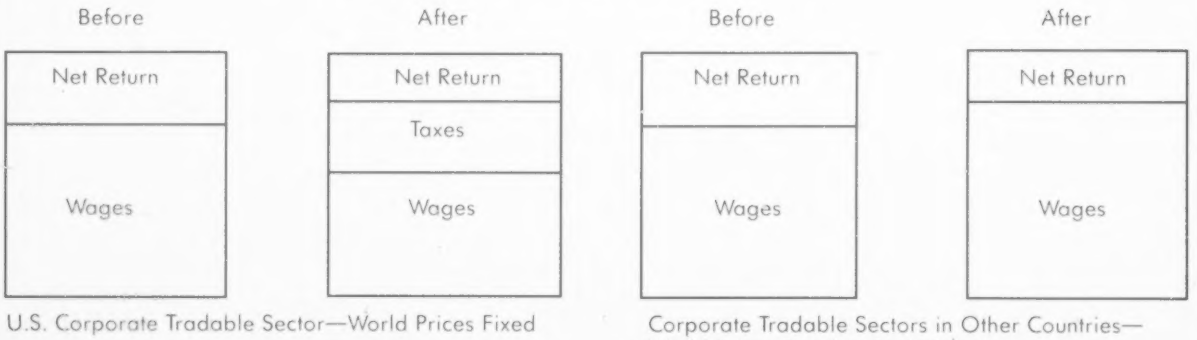
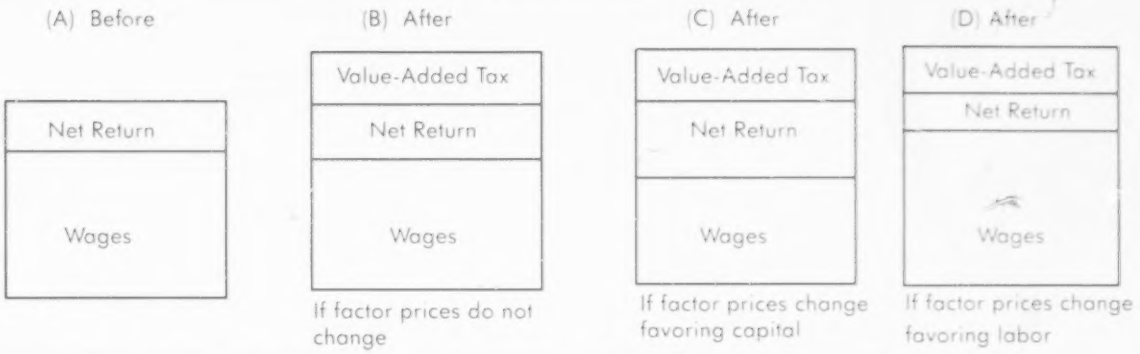


Table 3 The Case of a Value-Added Tax

Price Formation Before and After Tax is Imposed



Incidence of a Value-Added Tax

Professor Harberger also examines the incidence of a broad-based consumption tax using the same analytical framework. As before, the imposition of the VAT, in this case, inserts a wedge between the prices paid by buyers and the prices received by sellers. A major difference between the case of a corporate income tax and a VAT is that the latter can be reflected easily in the final product price. This is true whether the products are nontradable or tradable, or whether their prices are totally fixed in world markets or can vary. Border tax adjustments, through which the VAT is added to the price of imports (and deducted from exports) permit a country's price level to be above the world price level. Professor Harberger illustrates this with the example of an above-ground swimming pool, in which, assuming a 15 percent VAT, the water level of the pool is 15 percent above the water level of the rest of the world (see Table 3).

In contrast to the incidence of a CIT, the safety valves through which the tax wedge caused by a VAT work their way through in the price structure is simply the price paid by consumers. This does not mean that a VAT has no effect on factor prices. Table 3 illustrates three possible scenarios if the U.S. imposes a VAT. In the first instance, a U.S. value-added tax just adds to the price paid by consumers, leaving factor prices unchanged (see panel B). In the second case, wages fall slightly and the rate of return rises (see panel C). In the third instance, the net return to capital falls and wages rise (see panel D). But in all cases, the rise of the price is basically sufficient to cover the value-added tax and what happens between wages and net returns to capital is sort of a secondary story, not the primary story.

The primary story is that the value-added tax will cause the United States price level to rise above that of the rest of the world. That is the way the wedge is reflected and while it is going to be borne by U.S. consumers, it does not have the huge ramifications on factor prices of the corporation income tax in an open economy.

Conclusions

If U.S. labor bears a burden equal to 2 or 2 1/2 times the revenue proceeds of the U.S. corporation income tax, it might be attractive to consider a unilateral reduction of the U.S. CIT with the aim in mind of generating a positive impact on U.S. wages, Professor Harberger states. As long as the rest of the world does not follow the U.S. in its reduction of the CIT, the contemplated benefits to labor will in fact ensue. The tantalizing truth, however, is that the ultimate incidence effects of, say, a 10 percentage point reduction in the U.S. CIT, will not be determined in Washington but in the other major capitals of the world, as they decide whether or not to follow Washington's initiative in reducing this tax.

In contrast, if the United States were to implement a VAT, which more than half of the world already has, and simultaneously lower individual and corporate income tax rates by a moderate amount, it seems unlikely that the rest of the world would follow. Such a change has the potential to increase both investment and wages in the United States. ❖

The ACCF Center for Policy Research is the education and research affiliate of the American Council for Capital Formation. Its mandate is to enhance the public's understanding of the need to promote economic growth through sound tax and environmental policies. For more information,contact the ACCF Center for Policy Research, 1750 K Street, N.W., Suite 400, Washington, D.C. 20006; 202/293-5811.